

**H C P I D**

**Flood Control District  
Capital Projects**

# MEMORANDUM



**DATE:** June 15, 2012

**TO:** Arthur L. Storey, Jr., P.E.  
Harris County Public Infrastructure Dept.

9900 Northwest Freeway  
Houston, TX 77092  
713-684-4000

**FROM:** Michael D. Talbott, P.E.  
Director

*MDT* 6/15/12

**RE: Supplemental Memorandum**  
June 2012 - Capital Improvement Program Review

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This supplemental memorandum is issued to acknowledge additional considerations regarding capital project funding.

Budget Management will be developing information about the funding outlook for the District's capital projects over the next few months. The District will postpone as many project elements listed in its June 2012 CIP Report (Appendix A, Table 1) as practical in consideration of receiving more information about the funding outlook. This includes projects projected to use currently available cash on hand (about \$193.5 million), plus the commercial paper line of credit (\$200 million).

There are some critical project elements already in the works that will need funding commitments as the overall funding outlook is being developed. The District will further develop the funding requirements of critical project elements and coordinate the need for funding commitments with Budget Management.

Supplemental Memorandum - JUNE 2012 CIP TRANSMITTAL.DOCX

# MEMORANDUM



**DATE:** May 30, 2012

**TO:** Arthur L. Storey, Jr., P.E.  
Harris County Public Infrastructure Dept.

9900 Northwest Freeway  
Houston, TX 77092  
713-684-4000

**FROM:** Michael D. Talbott, P.E.  
Director

*MDT* *5/30/12*

**RE:** June 2012 - Capital Improvement Program Review

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## Key Findings and Recommendations

- It is recommended that Commissioners Court approve the list of projects as described in Appendix A, Table 1 of the attached report to be pursued from currently available funding of \$393.5 million.
- It is recommended that Commissioners Court provide new funding in the amount of \$200 million to be used predominantly for critical property acquisitions and new construction activities that are anticipated to begin within the next 24 months. A list of recommended projects is provided in Appendix A, Table 2 of the attached report.
- Of the currently available funding of \$393.5 million, some \$223 million (57%) is programmed for construction of projects currently in design and anticipated to begin construction between late 2012 and 2014. An additional \$87 million (22%) is programmed over the next two years to acquire properties necessary to build needed projects. The balance of funds is necessary for engineering and support activities.
- Of the requested additional \$200 million, some 31 percent will be applied to new property acquisitions and 44 percent toward new construction.
- In FY 2011-12, Federal reimbursements and commitments to ongoing projects totaled \$39 million. The majority of these commitments came from FEMA.
- Over the past decade, available funding has been supplemented by federal reimbursements allowing the available funding to remain at a high level. Based on recent trends, it is anticipated the federal level of participation will continue to decline placing an increased burden on local funding and resulting in a rapid decline in the currently available funding balance as construction activities continue.
- We have successfully increased the volume of construction activities year after year for the past three years. Anticipated construction awards in FY 2012-13 will total at least \$62.5 million and at least \$89 million in FY 2013-14 based on currently available funds. This trend is expected to continue beyond FY 2013-14 if additional funding can be provided.
- Recent bids indicate the favorable construction climate may be ending as a result of high fuel prices and increased competition for resources from land development activities and the oil shale industry.

- It is recommended that Commissioners Court consider reliable and predictable annual funding of \$200 million for new capital projects with two years of reserves for ongoing project activities. In order to effectively manage the project development cycle and provide uninterrupted delivery of projects, funding must be available at least two years in advance of actually obligating monies toward property acquisition and construction.
- If Commissioners Court creates a funding plan for reliable and predictable annual funding (\$200 million per year or another amount) the District will present a framework for consideration by Commissioners Court to provide that amount of flood control infrastructure on an annual basis.

### **Goals and Strategies**

The mission of the District is to “provide flood damage reduction projects that work, with appropriate regard for community and natural values.” In designing its capital improvement program, the goal is to be effective stewards of resources and to create a framework to plan, acquire, design and construct \$200 million of flood control infrastructure on an annual basis.

The current condition in Harris County suggests that there is a 10 to 20 percent chance that flooding will occur somewhere in the county during any given year (a 5- to 10-year level of protection). Reducing that annual risk to a 4 percent (25-year level of protection) is estimated to cost at least \$12 billion. The cost to achieve a 1 percent (100-year) level of protection is estimated to be at least twice that much. The recommended approach to making significant headway in reducing the risk of flooding is to invest \$200 million annually to acquire property, design and build channels and stormwater detention sites.

The attached June 2012 CIP Report outlines potential investments in flood damage reduction for the next five years totaling \$1 billion (for a fully-funded 5-year program at \$200 million per year). Even at this funding level, addressing a \$12 to \$25 billion problem would take decades.

### **Capital Projects Report**

The June 2012 CIP Report is attached, which includes supporting documentation for recent CIP highlights; an overview of flood damage reduction strategies and benefits; partnerships; construction outlook; recommended “active projects” to be executed from currently available funds; recommended projects for the next installment of new funds; recommended projects for a fully-funded 5-year CIP; a financial summary; and future projects and funding needs. Also included are maps of general project locations in the county and specific project maps for select watersheds.

### **Flood Damage Reduction Overview**

Flood damage reduction has been funded to a level of \$1.9 billion over the past 25 years (see Appendix E in the attached report). Nearly \$1.03 billion has actually been spent by the District in the past 12 years (plus the currently available \$393.5 million for a total of \$1.4 billion). In addition to this number, direct federal spending for flood damage reduction in the county has been about \$289 million. Federal partnerships have delivered funding directly to the District of \$103.7 million through the Corps of Engineers and \$178 million through FEMA, which is included in the \$1.4 billion.

That investment has made a tremendous difference in reducing damages from several major storm events over that period alone, plus a permanent reduction of future losses. It is estimated that the flood damage reduction investments in the past decade will save about \$2 billion in avoided damages alone. In addition to the direct cost savings in flood damages avoided, the projects also provide economic development and increased property values, and avoids personal trauma and tragedy. The greenways along the bayous on District property also provide some of the best opportunities for parklands and recreation areas which deliver significant health and quality of life benefits.

### **Currently Available Funding – Recommended Projects**

As of April 23, 2011, there is approximately \$368 million in currently available funds plus \$25 million in opportunities for approved FEMA grant funds for a total of \$393.5 million available. It is important to note that of the \$368 million left, some \$74.4 million are funds that were previously expended by the District and subsequently reimbursed through one of our federal, state or local partnerships.

Of this total amount (\$393.5 million), \$373 million is already programmed against ongoing projects, the majority of which are associated with the carryover funding prior to 2011. Also of this amount, some \$77.4 million is encumbered against existing contracts. The majority of projects identified in the June 2012 CIP document are programmed and projects are being initiated through contracts. Appendix A, Table 1 identifies a total of 184 active projects that are on-going.

### **Next Funding**

It is recommended that the next installment of District funding be made available this year for \$200 million. Having the funding available now would allow the project development phase for the next set of projects to begin, which takes on average about two years. Projects would then be ready to go to construction when currently available funding is running low. Of this new \$200 million, 31 percent is associated with acquisition of needed right-of-way critical to being able to move forward with project design and construction. Also some 44 percent is associated with new construction activities resulting from designs that would be completed over the next 24 months. A list of recommended projects for this new funding request is contained in the attached report as Appendix A, Table 2.

### **Recommended Projects for a Fully-Funded 5-Year CIP**

The District has identified projects that would be recommended for the 5-year CIP if it were fully funded to the recommended level of \$200 million per year. That gap in funding is the difference between recommended funding levels for the 5-year CIP of \$1 billion and the currently available (\$393.5 million) plus requested new funds (\$200 million), or about \$400 million. The list of recommended projects to fill out the 5-year CIP is included in Appendix C of the attached report.

### **Recommended Funding Level**

Reliable and predictable annual District CIP funding from all sources of about \$200 million is recommended. This recommendation is based on the following considerations:

- An aggressive CIP is appropriate for the next several decades to manage and mitigate the natural threat of flooding.
- The benefits to the community from implementation of flood risk reduction projects extends beyond just avoided flooding damages to economic development and increased property values, and the opportunity for parklands and recreation areas as the green space serves multiple purposes.
- Regardless of the federal ability to financially participate, the projects identified through the partnerships with the federal government still afford some of the best benefits to flood risk reduction. These projects alone can demand about \$100 million per year. If federal reimbursement or participation can occur, these projects bring at least 50% and as much as 75-90% financial participation.
- The recommended level of funding will also allow us to capitalize on partnerships with local and state governments.
- This level of funding will allow us to make appropriate investments in right-of-way to ensure the ability to implement projects in the future.
- At this funding level, measured progress can be made for all project categories (federal partnerships, District main channel projects, tributary projects, major maintenance, and auxiliary projects to support local government projects).
- Even at this funding level, "capital rationing" will occur because there are more projects (and the capability to produce them) than funding allows.
- There is an increased public awareness of the flooding threat and an expressed willingness to fund effective projects to reduce the threat.
- There is support for popular multi-use and quality-of-life initiatives on District property (by appropriate sponsors) that the CIP helps enable.
- There is support from watershed and neighborhood organizations, the Greater Houston Partnership, environmental organizations, and quality-of-life interests.

It is recommended that the District's next capital projects funding source and amount be identified and available as soon as possible. This will provide continuity in project implementation at an appropriate pace and avoid a significant gap in CIP implementation.

## VII. FINANCIAL SUMMARY

### Available Funding

The District receives funding for its projects through a combination of bond funds, cost-sharing partnership arrangements with other entities, and commercial paper. There are residual funds available from Harris County bonds issued in 2004 and in 2007.

Reimbursement from cost-sharing partnerships include efforts with federal, state and local sponsors. In addition, the District manages several impact fee arrangements that accommodate land development in certain watersheds for a cash fee to reimburse the District for prior investments in building infrastructure. Funds collected through impact fees must be expended within those watersheds. The sum total of all these resources represents the total available cash for capital improvement programming.

#### Available Cash by Fund for capital improvement projects as of April 23, 2012:

| Fund                    | Total Cash    | Encumbered   | Programmed    | To Be Programmed |
|-------------------------|---------------|--------------|---------------|------------------|
| 3310 - Reimbursement    | \$74,422,000  | \$32,327,000 | \$38,745,000  | \$3,350,000      |
| 3320 - Bond             | \$9,566,000   | \$2,161,000  | \$6,474,000   | \$931,000        |
| 3330 - HCFCD Bond       | \$27,784,000  | \$11,036,000 | \$14,158,000  | \$2,590,000      |
| 3970 – Commercial Paper | \$242,492,000 | \$27,073,000 | \$208,846,000 | \$6,573,000      |
| FEMA Grants             | \$25,306,000  | \$4,770,000  | \$20,536,000  | \$0              |
| Total                   | \$379,570,000 | \$77,367,000 | \$288,759,000 | \$13,444,000     |

#### Available Impact Fee Funds for watersheds with an adopted regional program as of April 23, 2012:

| Watershed               | Total Cash   | Encumbered | Programmed  | To Be Programmed |
|-------------------------|--------------|------------|-------------|------------------|
| Brays Bayou             | \$883,000    | \$0        | \$36,000    | \$847,000        |
| Cypress Creek           | \$3,907,000  | \$104,000  | \$3,356,000 | \$447,000        |
| Greens Bayou            | \$2,064,000  | \$9,000    | \$497,000   | \$1,558,000      |
| Addicks (Langham Creek) | \$2,887,000  | \$108,000  | \$2,480,000 | \$299,000        |
| Sims Bayou              | \$1,452,000  | \$21,000   | \$663,000   | \$768,000        |
| White Oak Bayou         | \$2,747,000  | \$0        | \$1,000     | \$2,746,000      |
| Total                   | \$13,940,000 | \$242,000  | \$7,033,000 | \$6,665,000      |

### Total Available Funds from all sources as of April 23, 2012

| All Funds | Total Cash    | Encumbered   | Programmed    | Contingency & Escalation |
|-----------|---------------|--------------|---------------|--------------------------|
|           | \$393,510,000 | \$77,609,000 | \$295,792,000 | \$20,109,000             |

Of the monies in contingency and escalation, about \$13.4 million will be programmed against identified and approved projects within the next 30 to 60 days and \$6.6 million is tied to watershed impact fee projects. While available funding appears to be a significant amount, it is important to realize that virtually 95 percent of the available funding is currently or will soon be programmed against existing, identified projects, and only 5 percent is available for contingency and escalation.

### Programming of Available Funds

The District programs available funds to specific studies and projects as approved by Harris County Commissioners Court. These may include continuing progress on multi-year mega-projects or executing studies and projects more narrow in scope. A discussion of the District's Capital Improvement Program (CIP) Portfolio Management approach is presented as Appendix D.

A certain amount of flexibility in project implementation is appropriate when demand for funds exceeds the availability of funds, as is the case with flood damage reduction needs. At times throughout the year opportunities present themselves to take advantage of opportunities that may arise unexpectedly. An example would be when a funding partner enables an opportunity to leverage project funds or a strategic parcel of land becomes available. To allow for such opportunities, flexibility is important in programming of funds. Such opportunities are presented to Commissioners Court for consideration and possible modification of the recommendations in this report.

The District recommends continuation of programming the currently available funds to the projects in Appendix A, Table 1 and funding an additional \$200 million toward the projects identified in Appendix A, Table 2. The currently available funding is allocated toward the following project categories.



### PROGRAMMING OF AVAILABLE FUNDS BY CATEGORY

| Category   | Available Funds | Percent of Total Funds |
|--|-----------------|------------------------|
| 1. Federal Flood Damage Reduction Projects         | \$114,630,000   | 29.1%                  |
| 2. FEMA Mitigation Grants                          | \$82,742,000    | 21.0%                  |
| 3. Main Channel Flood Damage Reduction Projects    | \$56,591,000    | 14.4%                  |
| 4. Tributary Flood Damage Reduction Projects       | \$86,260,000    | 21.9%                  |
| 5. Major Maintenance Projects                      | \$4,543,000     | 1.2%                   |
| 6. Flood Plain Acquisition & Preservation Projects | \$14,880,000    | 3.8%                   |
| 7. Frontier Projects                               | \$4,476,000     | 1.1%                   |
| 8. & 9. Local Participation Projects               | \$9,279,000     | 2.4%                   |
| Contingency & Escalation Funds                     | \$20,109,000    | 5.1%                   |
| Total  | \$393,510,000   | 100.0%                 |

### PROGRAMMING OF AVAILABLE FUNDS BY ACTIVITY

| Life-Cycle Stage               | Available Funds | Percent of Total Funds |
|--------------------------------|-----------------|------------------------|
| Feasibility Studies            | \$16,477,000    | 4.2%                   |
| Project Development Phase      | \$7,761,000     | 2.0%                   |
| Design Phase                   | \$7,334,000     | 1.9%                   |
| Right of Way Acquisitions      | \$98,738,000    | 25.1%                  |
| Utility/Pipeline Adjustments   | \$16,077,000    | 4.1%                   |
| Construction Phase             | \$203,956,000   | 51.8%                  |
| Turnover & Startup Phase       | \$9,331,000     | 2.4%                   |
| Support Activities             | \$13,727,000    | 3.5%                   |
| Contingency & Escalation Funds | \$20,109,000    | 5.1%                   |
| Total                          | \$393,510,000   | 100.0%                 |

## PROGRAMMING OF AVAILABLE FUNDS BY WATERSHED

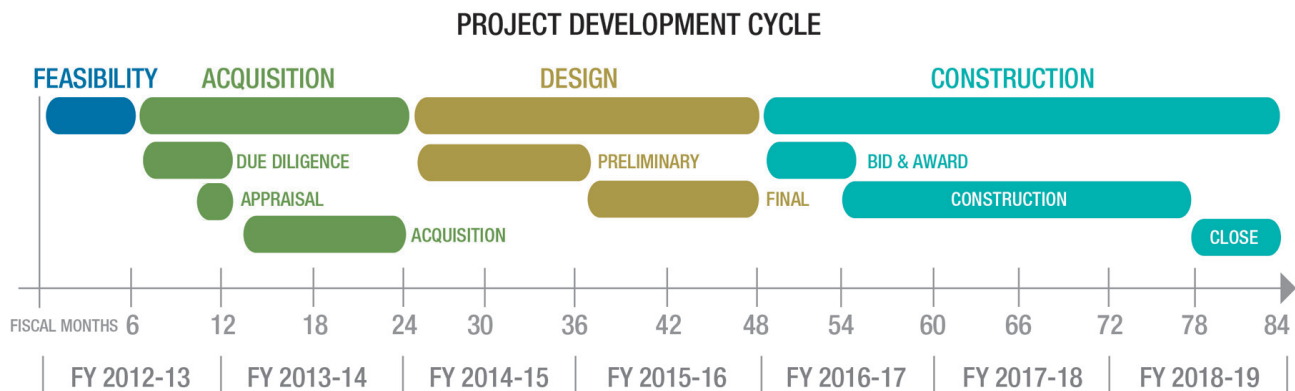
| Watershed                          | Available Funds | Percent of Total Funds |
|------------------------------------|-----------------|------------------------|
| Addicks Reservoir                  | \$8,955,000     | 2.3%                   |
| Armand Bayou                       | \$5,591,000     | 1.4%                   |
| Barker Reservoir                   | \$2,842,000     | 0.7%                   |
| Brays Bayou                        | \$61,053,000    | 15.5%                  |
| Buffalo Bayou                      | \$39,849,000    | 10.1%                  |
| Carpenters Bayou                   | \$0             | 0.0%                   |
| Cedar Bayou                        | \$0             | 0.0%                   |
| Clear Creek                        | \$23,893,000    | 6.1%                   |
| Cypress Creek                      | \$12,845,000    | 3.3%                   |
| Galveston Bay                      | \$1,420,000     | 0.4%                   |
| Goose Creek & Spring Gully         | \$133,000       | 0.0%                   |
| Greens Bayou (Without Halls Bayou) | \$39,475,000    | 10.0%                  |
| Halls Bayou                        | \$20,061,000    | 5.1%                   |
| Hunting Bayou                      | \$14,989,000    | 3.8%                   |
| Jackson Bayou                      | \$0             | 0.0%                   |
| Little Cypress Creek               | \$1,233,000     | 0.3%                   |
| Luce Bayou                         | \$0             | 0.0%                   |
| San Jacinto River                  | \$4,302,000     | 1.1%                   |
| Sims Bayou                         | \$45,795,000    | 11.6%                  |
| Spring Creek                       | \$622,000       | 0.2%                   |
| Vince Bayou                        | \$0             | 0.0%                   |
| White Oak Bayou                    | \$35,147,000    | 8.9%                   |
| Willow Creek                       | \$200,000       | 0.1%                   |
| County Wide                        | \$54,996,000    | 14.0%                  |
| Contingency & Escalation Funds     | \$20,109,000    | 5.1%                   |
| Total                              | \$393,510,000   | 100.0%                 |

## Cash Flow Analysis

The flood damage reduction strategies on most major bayous range in cost from \$50 million to \$500 million to implement. In order to effectively implement these strategies the District breaks these strategies into smaller project phases ranging in size from \$5 million to \$30 million. Many of the costlier project elements are frequently associated with just acquisition of right-of-way to enable future implementation of a project. The acquisition process itself can take 12 to 24 months to complete, and in some cases significantly longer, depending on willingness of the owner to sell. Construction projects are typically sized to allow work to be completed in a 24-month period.

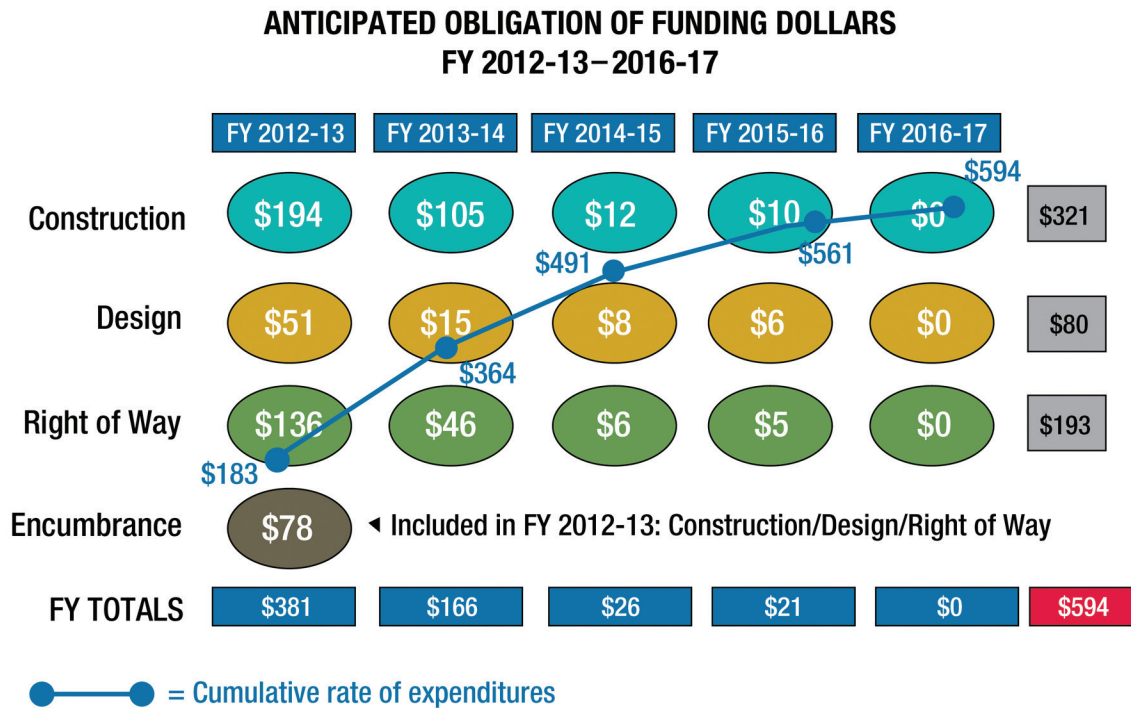
Of the \$200 million recommended for “next funding” toward the District’s CIP in FY 2012-13, approximately 31 percent will be spent toward property acquisition and 44 percent will be spent on construction. This is in addition to the current \$393.5 million currently available funds, of which an estimated \$223 million is programmed for construction and \$87 million for property acquisition. The balance of funds is programmed for engineering and support services.

The graphic below depicts the Project Development Cycle with general timelines anticipated for each phase of the project. In order to initiate any specific phase of a project, funds must be available at the outset of that phase in order to obligate (encumber) funding to complete that phase.



The District, therefore, must operate on two funding schedules. The first is a schedule of when funds must be made available in order to proceed with any given phase of the Project Development Cycle. The second is the actual anticipated cash flow of expenditures. The District's goal is to effectively plan, design and build \$200 million in flood reduction infrastructure annually. As it moves towards this goal, the following graphic depicts the anticipated need to obligate funds as well as the anticipated rate of expenditures based on the available \$393.5 million and the requested additional \$200 million.

The graphic below depicts how these two funding schedules interact. The ovals depicted represent the year in which funds would have to be obligated, by type of major project activity. The line depicts the pace at which funds will actually be expended.



## VIII. FUTURE PROJECTS AND PROGRAMMING NEEDS

The total capital programming needs to reduce flooding risks and damages in Harris County are a function of the level of risk and the overall cost the community is willing to accept.

District technology developed from its Watershed Master Plan program has allowed it to estimate the overall future needs for flood damage reduction projects. This same technology has allowed us to quantify the benefits of the work we have accomplished. In return for the \$1.03 billion expended over the past 12 years, it is estimated that this investment will result in \$2 billion, or almost \$75 million annually, in flood damages avoided over the life of the projects. The flood damage reduction work is resulting in modifications to the floodplain maps that will remove the floodplain from as many as 30,000 structures and reduce the risk of flooding to tens of thousands of additional structures.

The current condition in Harris County suggests that there is a 10 to 20 percent chance that flooding will occur somewhere in the county during any given year (a 5- to 10-year level of protection). Reducing that annual risk to a 4 percent (25-year) level of protection is estimated to cost at least \$12 billion. The cost to achieve a 1 percent (100-year) level of protection is estimated to be at least twice that much. The recommended approach to making significant headway in reducing the risk of flooding is to invest \$200 million annually to acquire property, and design and build channels and storm water detention sites.

Prioritizing these needs for implementation is a dynamic process as the number of structures at risk, improvements in technology, trends in development, rate of decline of existing facilities, opportunities to partner with other agencies and, of course, availability of funding change throughout time. In order to keep pace with these changing priorities the District develops its 5-year Capital improvement Program and updates it annually.



*Arthur Storey Park*

Reliable and predictable annual District CIP funding from all sources of about \$200 million is recommended, and is based on the following considerations:

- An aggressive CIP is appropriate for the next several decades to manage and mitigate the natural threat of flooding.
- Regardless of the federal ability to financially participate, the projects identified through the partnerships with the federal government still afford some of the best benefits to flood risk reduction. These projects alone can demand about \$100 million per year. If federal reimbursement or participation can occur, these projects bring at least 50 percent and as much as 75-90 percent in financial reimbursements.
- The recommended level of funding will also allow us to capitalize on partnerships with local and state governments.
- This level of funding will allow us to make appropriate investments in right of way to allow us to build future projects without delay.
- At this funding level, measured progress can be made for all project categories (federal partnerships, District main channel projects, tributary projects, major maintenance, and auxiliary projects to support local government projects).
- Even at this funding level, "capital rationing" will occur because there are more projects (and the capability to produce them) than funding allows.

- There is an increased public awareness of the flooding threat and an expressed willingness to fund effective projects to reduce the threat.
- There is support for popular multi-use and quality-of-life initiatives on District property (by appropriate sponsors) that the CIP helps support.
- There is support from watershed and neighborhood organizations, the Greater Houston Partnership, environmental organizations, and quality-of-life interests.

Of the \$200 million CIP funding recommended, the amount to be provide from local sources must be evaluated. The assumption for the past several years is that about \$30 million annually would come from federal partnerships (the average for the past decade). However, in the past few years, federal budget priorities have yielded only about 10% of that number. With the recent cutbacks in federal investment and reimbursements for flood damage reduction projects, the pace of implementation must be considered. The shortfall in partnership funding must be made up locally in order to keep up the pace (including the risk of never being reimbursed for the costs due to changing federal priorities), or projects must be slowed down. This subject is discussed in more detail in a June 1, 2011 memo from the District Director to the County Budget Officer.